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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,287	10/07/2003	Brian Champlin	ALC 3090	4035

7590 06/27/2007
KRAMER & AMADO, P.C.
1725 Duke Street, Suite 240
Alexandria, VA 22314

EXAMINER

MUI, GARY

ART UNIT	PAPER NUMBER
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2616

MAIL DATE	DELIVERY MODE
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06/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/679,287	Applicant(s) CHAMPLIN ET AL.	
	Examiner Gary Mui	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) ☐ Notice of Informal Patent Application |
| 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) ☐ Other: _____ |

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1 – 4, 7 – 10, and 17 – 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giroux et al. (US 2002/008933 A1) in view of Ikeda (US 5,438,567).

For claims 1, 4, and 7, Giroux et al. teaches a maximum burst size register holding a value corresponding to a maximum amount of content the input port is allowed to receive as content is being received by the input port at a rate above the input port service rate; and a first comparator providing in real time an acceptance rate limiting control signal in comparing the value of the up-down counter to the value of the maximum burst size register, the acceptance rate limiting control signal providing link-layer input port-based hardware implemented acceptance rate limiting control (see paragraphs 0004 – 0009; congestion of the switch is

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detected by monitoring the queue depth and each queue has a threshold value in which it is compared to; from the comparison the congestion control will limit traffic).

Giroux et al. fails to teach an up-down counter being incremented as content is received via a corresponding input port and decremented at an input port service rate, the up-down counter value is representative of a buffer occupancy level of a receive port buffer, and decrementing the up-down counter. Ikeda from the same field of endeavor teaches a packet counter that counts and maintains the number of packets in a buffer as it is coming into the port (see column 5 lines 6 – 19 and figure 7 box 352-1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the counter as taught by Ikeda to count the queue depth of Giroux et al. The motivation for doing this is to highly efficient system with congestion control.

For claim 2, Giroux et al teaches a committed rate register holding a value representative of the service rate, the service rate corresponding to a Service Level Agreement (SLA) committed rate, the input port-based hardware implemented acceptance rate limiting control enforcing a corresponding SLA agreement (see paragraphs 0046 and 0047; the maximum transmission rate to maintain the goodput).

For claim 3, Giroux et al. teaches the physical port is an ATM port (see paragraph 0010).

For claim 8, Giroux et al. teaches means for identifying bus transactions servicing the input port, and means for generating a signal train at the service rate (see paragraph 0009).

For claim 9, Giroux et al. teaches an adjustable signal train generator generating a signal train at the service rate (see paragraph 0009).

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For claim 10, Giroux et al. fails to teach a second comparator determining in real time whether the value of the up-down counter is less than the value specified in a low watermark register in determining that the input port is receiving content at a rate below the service rate. Ikeda et al. form the same field of endeavor teaches a second threshold value for comparison (see column 6 lines 5 – 33; the first threshold is the low watermark and the second is the high). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use a second comparator as taught by Ikeda in Giroux et al. switch. The motivation for doing this is to effectively know when the switch is fully utilized.

For claim 17, Giroux et al. teaches the operation of the physical port controller, in enforcing acceptance rate limiting control, ensuring that the reception rate of a corresponding input port associated with the line card does not exceed a highest service rate at which a data bus to which the line card is connectable to can operate at (see paragraphs 0007 – 0009).

For claim 18, Giroux et al. teaches the physical port is an ATM port (see paragraph 0010).

For claim 19, Giroux et al. teaches the combined operation of the plurality of physical port controllers enforcing acceptance rate limiting control enforces bandwidth reservations for each corresponding input port for corresponding portions of bandwidth on a data bus to which the multi-ported line card is connectable to (see paragraphs 0001).

For claim 20, Giroux et al. teaches the multi-ported ATM line card (see paragraph 0010).

For claim 21, Giroux et al. teaches the combined operation of the plurality of physical port controllers, in enforcing acceptance rate limiting control, reserving for each input port corresponding portions of bandwidth on a data bus servicing the corresponding plurality of physical ports (see paragraphs 0007 – 0009).

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For claim 22, Giroux et al. teaches incrementing the value of an up-down counter associated with an input port as content is received; decrementing the value of the up-down counter at a service rate; activating an acceptance rate limiting control signal upon determining that the value of the up-down counter is greater than a maximum burst size value; and deactivating the acceptance rate limiting control signal upon determining that the value of the up-down counter is lower than a low watermark value, the activation and the deactivation of the acceptance rate limiting control signal with the service rate set at an agreed upon Service Level Agreement (SLA) committed rate enforcing the SLA at the input port (see paragraphs 0004 – 0009; congestion of the switch is detected by monitoring the queue depth and each queue has a threshold value in which it is compared to; from the comparison a congestion control mechanism is triggered to limit the traffic and to main the goodput of the system). Giroux et al. fails to teach the counter. Ikeda from the same field of endeavor teaches a packet counter that counts and maintains the number of packets in a buffer as it is coming into the port (see column 5 lines 6 – 19 and figure 7 box 352-1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the counter as taught by Ikeda to count the queue depth of Giroux et al. The motivation for doing this is to highly efficient system with congestion control.

For claim 23, Giroux et al. teaches generating a signal train repeating at the service rate by programming an adjustable clock with a value specified by a committed rate register (see paragraph 0009).

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For claim 24, Giroux et al. teaches generating a signal train repeating at the service rate by programming a frequency divider to derive the signal train from a line clock associated with the input port (see paragraph 0009).

Claim Rejections - 35 USC § 103

7. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giroux et al. and Ikeda as applied to claim 1 above, and further in view of Sato (US 6,009,078).

For claim 5, Giroux et al. and Ikeda teaches all of the claimed subject matter with the exception of incrementing the up-down counter as valid content is received. Sato from the same field of endeavor teaches in an ATM switch the successively counting the selected cells (see column 3 lines 26 – 44). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to count selected cells as taught by Sato into the switch of Giroux et al. and Ikeda. The motivation for doing this is to have an efficient switch wherein non-selected cells are not counted.

For claim 6, Giroux et al. teaches means for incrementing the up-down counter is responsive to a combination of a receiving frame signal, a line clock signal; and the acceptance rate limiting control signal (see paragraphs 0004 – 0009).

Claim Rejections - 35 USC § 103

8. Claims 11 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giroux et al. and Ikeda as applied to claim 10 above, and further in view of Todd et al. (US 2005/0047333 A1).

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For claim 11, Giroux et al. and Ikeda teaches all of the claimed subject matter with the exception of means for introducing hysteresis in effecting acceptance rate limiting control as the value of the up-down counter transitions between the maximum burst size value held in the maximum burst size register and the low watermark value held in the low watermark register. Todd et al. from the same field of endeavor teaches the use of histograms and long term logs to trigger alarms for possible overflows or under flows (see paragraphs 0006 and 00036). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to introduce hysteresis as taught by Todd et al. into Giroux et al. and Ikeda system. The motivation for doing this is to enhance the reliability of the system.

For claim 12 and 13, Giroux et al. and Ikeda teaches all of the claimed subject matter with the exception of a master-slave flip-flop and wherein the master slave flip-flop further comprises a J-K flip-flop. Todd et al. from the same field of endeavor teaches the histogram data and log data in which is system is implement in FPGA, ASIC, or discrete logic. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have logic circuits like flip-flops taught by Todd et al. into Giroux et al. and Ikeda system. The motivation for doing this is to increase the efficiency of the system.

Claim Rejections - 35 USC § 103

9. Claims 14 – 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giroux et al. and Ikeda as applied to claim 10 above, and further in view of Mimura et al. (US 6,847,613 B2).

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For claim 14, Giroux et al. and Ikeda teaches all of the claimed subject matter with the exception of means for providing an assessment of a degree of non-adherence to a corresponding SLA. Mimura et al. from the same field of endeavor teaches of acquiring statistics of packets that match or mismatch on a certain condition and stores the measured data in a management information base (see column 2 lines 33 - 53). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to measure the mismatch data as taught by Mimura et al. into the system of Giroux et al. The motivation for doing this is to increase the accuracy of the rates for the port.

For claims 15 and 16, Giroux et al. and Ikeda teaches all of the claimed subject matter with the exception of the means for providing the assessment of the degree of non-compliance to the SLA further comprises a dropped frame counter counting the number of frames dropped derived from a logical combination between the receiving frame signal and the acceptance rate limiting control signal and the means for providing the assessment of the degree of non-compliance to the SLA further comprises a discarded content counter counting the amount of content discarded derived from a logical combination between the receiving frame signal, the acceptance rate limiting control signal, and a line clock signal. Mimura et al. from the same field of endeavor teaches counting the number of discarded packets per unit time (see column 6 line 59 – column 7 line 29). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to count the number of discarded packets as taught by Mimura et al. into Giroux system. The motivation for doing this is to have a more reliable system by knowing the number of packets dropped the port rate can be adjusted accordingly.

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Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Carlson (US 6,381,649 B1), Manning (US 6,473,400 B1), Yadav et al. (US 6,868,062 B1), Abbasi et al. (US 6,925,502 B1), Konuma (US 2002/0141339 A1), and Tiller et al. (US 2005/0041577 A1) are cited to show a line card port protection rate limiter circuitry.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary Mui whose telephone number is (571) 270-1420. The examiner can normally be reached on Mon. - Thurs. 9 - 3 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GM

06.22.2007


RICKY Q. NGO
SUPERVISORY PATENT EXAMINER